

REMARKS

Upon entry of the present Amendment-D the claims in the application are claims 1-3, 6-10, 13, 14 and 17-19, of which claims 1, 2, 7, 10, 14 and 18 are independent.

In the above amendments, claim 2 is amended to incorporate the feature of claim 20 (now cancelled), claim 14 is amended to more particularly point out and distinctly claim the subject matter which applicant regards as the invention by incorporating therein a further description of the elongate shape of a cross section of the laser light laser light resulting from the different radii of curvature of the condenser and/or reflector, and claim 18 is amended to expressly state (clarify) that the predetermined angle is non-linear (similar to the limitation already appearing in claim 3).

Applicant respectfully submits that all of the amendments presented are fully supported by the original disclosure, including Figs. 1, 5 and 6, and the discussion at the second paragraph on page 39 of the specification. Further, applicant respectfully submits that the above amendments do not introduce any new matter into the application.

Still further, applicant respectfully submits that the above amendments do not raise any new issues for consideration by the Examiner because the amendments merely involve incorporation of a dependent claim into the independent claim, cancellation of claims, and clarification of terms used in the claims for the purpose of addressing aspects of the Examiner's rejection of claims under 35 USC 112, second paragraph.

Allowed and Allowable Subject Matter

Again, applicant gratefully acknowledges the Examiner's allowance of claims 1, 7-10 and 13, as well as the Examiner's indication that claim 3 contains allowable subject matter, set forth

at page 4 of the current Office Action and at items 1-3 of previous Office Action.

Rejection Under 35 USC 112

35 USC 112 Rejections

At item 1 of the Office Action, the Examiner maintains the rejection of claims 2, 3, 6, 14, 15 and 17-19 under 35 USC 112, second paragraph, as allegedly failing to particularly point out and distinctly claim the subject matter that the applicant regards as his invention. Again, the Examiner asserts that these claims are indefinite because they do not claim the "main aspect" of the invention; namely, a structure to prevent pumping of laser light from irradiating back onto the semiconductor laser. The Examiner bases this assertion on her interpretation of the disclosure set forth at page 5, lines 18-25 of the specification. Further, at item 8 of the Office Action the Examiner provides a "Response to Arguments" in which she more specifically asserts that "All the embodiments, which are summarized on pages 5-12 of the specification, mentions either 1) a concave mirror or 2) a core axis which forms a predetermined non-linear angle with respect to the optical axis of the laser medium. The concave mirror is the element that allows for the predetermined non-linear angle mentioned in several of the aspects of the present invention. Therefore, a concave mirror must be recited in each of the independent claims since it is the critical structure that allows for the "predetermined angle" to be achieved."

Applicant's Response

Upon careful consideration and in light of the above amendments to claims 2, 14 and 18, applicant respectfully traverses such rejection and submits that each of the rejected claims is

adequately definite within the guidelines of 25 USC 112, second paragraph, based on the arguments presented in Amendment-C and on the following.

Initially, applicant again respectfully submits that the Examiner's position is *factually inaccurate* (and correspondingly *legally unfounded*) because the application never defines or discloses the concept/aspect of providing structure to prevent pumping of laser light from irradiating back onto the semiconductor laser as "the (only) main aspect" of the invention, nor do all embodiments disclosed in the application require a concave mirror as part of a structure to prevent pumping of laser light from irradiating back onto the semiconductor laser. For example, the embodiments of Figs. 5 and 6 include a condenser lens 52, 62 arranged at a predetermined angle θ between the semiconductor laser 51, 61 and the path of the laser light La which is being pumped back and forth between the laser medium 53, 63 and a reflecting mirror 54, 64. While the condenser lenses 52, 62 arranged at the angle θ achieve a function similar to the main aspect discussed by the Examiner, the mirrors 54, 64 (which are the only mirrors included in these embodiments) have nothing to do with such main aspect of the invention as defined/asserted by the Examiner.

As another example, are the 10th and 11th embodiments of the invention as depicted in Figs. 18-20. According to these embodiments, a main focus is the elongate shape of the cross section of the laser light (see Fig. 19) achieved by using at least one of a condenser lens 152b and a reflector (mirror) 154 or 164 having different radii of curvature in the parallel and perpendicular directions with respect to the sample flowpath. Again, the mirror 154 or 164 is the only mirror in either embodiment, but because it is axially aligned with the semiconductor laser 151 (and the solid state laser 153) of these embodiments, it does not and could not achieve the main function as discusses

by the Examiner.

Similar arguments apply to the embodiments disclosed in the 7th -11th embodiments of the invention, wherein a main aspect of the invention pertains to the setting mechanisms for axially aligning the laser medium and the reflection mirror, rather than to the main aspect as discussed by the Examiner.

Thus, applicant respectfully submits that it would be unduly restrictive to define the concave mirror in each of the present claims as the Examiner apparently desires, but any such amendment in which the mirror is operatively linked to the so-called "main aspect of the invention" as defined by the Examiner would be inaccurate and constitute impermissible new matter in relation to several of the present claims.

In this regard, the courts have long held that claim language is adequately definite within the guidelines of 35 USC 112, second paragraph, if the claims, when read in light of the specification, reasonably apprise those skilled in the art of the scope of the invention. Miles lab., Inc. v. Shandon, Inc., 27 USPQ2d 1123, 1126 (Fed. Cir. 1993), *cert. Denied*, 114 S.Ct. 943 (1994). Applicant respectfully submits that each of the present claims meets this standard.

In view of the foregoing, applicant respectfully submits that each of the present claims is adequately definite within the within the guidelines of 35 USC 112, second paragraph, and accordingly it is respectfully requested that the rejection set forth in the final Office Action be reconsidered and withdrawn.

Art-Based Rejections

At item 4 of the final Office Action, the Examiner has rejected claims 2, 6, and 18-21 under

35 USC 102(b) as being anticipated by DeFreez et al. (US 6,111,642), while at item 5 of the Office Action, the Examiner also rejects claims 14, 15 and 17 as being unpatentable over DeFreez with regard to the "diode laser pump" in Figure 1 and a concave mirror 66 disposed between the flow path and the semiconductor laser. The Examiner's rejections are essentially the same as presented in the prior Office Action. Further, at item 8 of the final Office Action the Examiner provides a "Response to Arguments" in which she more specifically asserts that: applicant does not define (in claim 2) sufficient structural relationships between the concave mirror and the other elements in the system to distinguish over prior art; the mirror 66 in DeFreez's Fig. 1 functions to condense light from laser to irradiate upon the solid state laser crystal 44, and hence meets the requirements of claim 14; and the language "predetermined angle" in claim 18 is unclear in meaning, whereas to any extent the invention includes apparatus for establishing the "predetermined angle", the claim must incorporate a definition of such apparatus.

Applicant's Response

Upon careful consideration and in light of the above amendments, applicant respectfully traverses such rejection and submits that each of present claims 2, 6, 14 and 17-19 is clearly patentably distinct over DeFreeze's particle detector, for those reasons set forth at pages 11-12 of Amendment-C and for the following additional reasons.

Regarding the Examiner's rebuttal response relating to claim 2, applicant respectfully submits that the curved resonator mirror 66 in DeFreez's Fig 1 is (together with the other curved resonator mirror 68 and the solid state laser crystal 64) part of the diode laser pump 20, and hence not analogous to the concave mirror of amended claim 2 having an optical axis which does *not coincide with* an optical axis of the semiconductor laser. As shown in DeFreez's Fig 1, a condenser

lens (not numbered) disposed in front of the diode laser (also not numbered) functions to condense light from the laser before it passes through the mirror 66 to the laser crystal 64. The mirror 66, on the other hand, does not alter the condensed nature of light passing from the lens to the crystal, but reflects and condenses light as it is pumped back and forth between the pair of mirrors 66, 68, whereas all of these components of DeFreez's system have optical axes which coincide.

Regarding the Examiner's rebuttal response relating to claim 14, applicant respectfully submits that the significance of the condenser and/or the reflector having a surface having different radii of curvature in the parallel direction and the perpendicular direction with respect to the flow path is that a cross-section of the resultant laser light has an elongated shape flattened to be shorter in the direction of the flow path and longer in the direction perpendicular to the flow path for enhanced sensing capabilities, as discussed in relation to the 10th – 12th embodiments of the invention. This distinction is now more clearly expressed in the amended claim. Conversely, there is no disclosure of DeFreez indicating or suggesting in any way that a condenser and/or a reflector of his system has a surface having different radii of curvature in the parallel direction and the perpendicular direction with respect to the flow path. DeFreez does not address or achieve this significant aspect of the claimed invention.

Regarding the Examiner's response relating to claim 18, applicant respectfully submits that such response has nothing to do with the appropriateness/inappropriateness of the rejection under 35 USC 102(b). At most, such response could be alternatively presented as a new objection or a new rejection under 35 USC 112, first and/or second paragraph, and in such case the Examiner should withdraw the finality of the Office Action pursuant to MPEP 706.07(a).

On the other hand, applicant respectfully submits that the claim language is otherwise

appropriate under 35 USC 112, first and second paragraphs because the claim language including "predetermined angle" would be clearly understood by persons skilled in the art from the context of the claim and the corresponding disclosure of the predetermined angle θ in the specification, whereas the present disclosure would surely enable persons skilled in the art to determine an appropriate "predetermined angle" as claimed, e.g., one whereby the optical axes of the semiconductor laser and the laser medium do not coincide. Further, the above amendment to claim 18 clarifies that the predetermined angle is "non-linear".

Based on the foregoing, the rejections of claims 2, 6, 14, 15 and 17-21 based on DeFreez are believed to be overcome in relation to present claims 2, 6, 14, and 17-19, and accordingly it is respectfully requested that the rejections be reconsidered and withdrawn.

Conclusion

In conclusion, applicant has overcome the Examiner's rejections as presented in the Office Action; and moreover, applicant has considered all of the references of record, and it is respectfully submitted that the invention as defined by each of the present claims is clearly patentably distinct thereover.

The application is now believed to be in condition for allowance, and a notice to this effect is earnestly solicited.

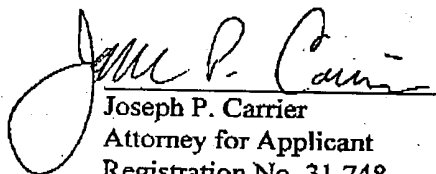
Entry of the present Amendment-D is respectfully requested under 37 CFR 1.116 on the grounds that: the Amendment does not raise any new issues for consideration by the Examiner; the Amendment reduces the number of issues on appeal, if necessary; and moreover, the Amendment is believed to place the application in condition for allowance.

If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that she telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable reconsideration is respectfully requested.

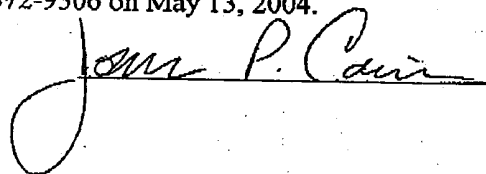
Respectfully submitted,

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CERTIFICATE OF TRANSMISSION

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